RODRIGO VICTORIA – A marked shift in focus has been noted within the chemical industry, with the emphasis moving away from traditional supervisory batch management to production management. To help market players keep pace with this change, ABB has crafted System 800xA Batch Management: a comprehensive, ISA-88 compliant recipe management, batch and procedural control software package for configuring, scheduling, and managing batch operations to improve batch production profitability, consistency and traceability, while ensuring improved regulatory compliance, safety, and security.

Reactor reaction

ABB batch management with 800xA comes to Colombia for the first time
non-food products, such as toothpaste, diet pills, water-based paints, detergents, eye drops and various paper products. It is used primarily because it has high viscosity, is non-toxic, and is hypoallergenic \[1\].

Due to the fact that this was the first batch project of its kind in Colombia, numerous technical issues had to be resolved before the system was stabilized. Amtex considered the system to be very expensive. However, with the solution reinforced by ABB’s global expertise, particularly from the Latin American network including ABB Brazil and ABB Argentina, the channel partner and ABB Colombia, the customer was assured that they would have all the technical support needed to meet the demands of the project. As the first ever batch management project developed with ABB System 800xA in Colombia, the contract held particular significance for both ABB Colombia and the channel partner, Automatización S.A.

The channel partner
Headquartered in the metropolitan area of Medellín, Colombia, Automatización S.A. carries out its activities throughout Colombia with offices in the cities of Bogotá, Cali and Cartagena. Founded in 1962, Automatización S.A. has a long history of successes in providing automation products and services to various industries in Colombia.

As the system integrator for this Amtex project, Automatización S.A. was in charge of designing the integration of the DCS system, as well as installation, calibration, commissioning and service.

Scope and challenges
Five reactors were automated with the System 800xA control system. In 2010, Amtex realized it needed to automate a reactor at its functional polymers plant and operate under Batch standards. After reviewing tenders from various suppliers, through channel partner Automatización, Amtex selected ABB for its solution’s technical advantages in both the control system and batch processing. Amtex’s confidence in the contractor’s technical knowledge and global support were critical factors in winning the contract.

The scope of the first contract was the automation of one reactor. However, due to the strong collaboration between ABB Colombia and Automatización S.A., the benefits of going with System 800xA Batch Management became apparent.

CMC is used in food science as a viscosity modifier or thickener, and to stabilize emulsions in various products including ice cream. As a food additive, it is known as E466. It is also a constituent of many raw materials.
“Nowadays customers worldwide seek minimal changes in their process and the only way of managing it is by reducing process variables.”

ABB’s automation to the other five reactors at the plant.

The system was implemented with redundancy at the controller, network control and AC800M Connectivity Server. The system has a Batch Server, Information Management Server, two operator workplaces, one engineering workplace and three controllers. The main controller also has five Profibus DP modules: one for each reactor to connect remote I/O modules, ABB drives and Profibus PA instrumentation. The elements supplied were:

**Batch server**
The process operates a total of 50 equipment and two full production management clients. The System 800xA batch management complies with ISA S88 and allows the standardization of production control according to the requirements of customer orders.

**Information management server**
For the reporting process, Automatización implemented an Information Management Server that generates specific reports for raw materials, electrical consumption, steam and water utilization, batch production, process variables, alarms and events.

**Connectivity server**
A redundant connectivity server was installed, guaranteeing the availability of the system. The license of this system covers 600 redundant tags.

**Operator and engineer workplaces**
The control room has two operator workplaces with Batch functionalities: one with four monitors for operating the processes, and another for monitoring batch processes (i.e., PFC), editing recipes, accessing data, including making online changes to the recipe ➔ 2.

The second workstation also features the engineering workplace where the operator can make adjustments, changes and enhancements in the control system.

**Controllers**
The system has three AC800M controllers: two in redundant configuration, for process control, and one for auxiliary plant equipment which connects the plant meters via a Modbus RTU network ➔ 3. This setup prevents the process controllers from being overloaded with data traffic tasks that could affect the performance of the CPUs.

**Fieldbus and I/O modules**
The system has a control rack for the controllers and DP/PA converters; and four distributed control racks that have remote I/O modules connected by Profibus DP. The I/O modules for hazardous areas are S890. Each reactor has a Profibus DP master module to which the variable-speed drives and I/O modules are connected via remote DP/PA converters. For this project, Profibus PA instruments such as Series 266 pressure transmitters, temperature transmitters and Coriolis mass flowmeters were also supplied.

**And the reaction is . . .**
Amtex’s primary goals for automating its chemical process were to increase production to around 30 percent and access realtime and accurate information on the production process. Now, with the process fully automated with System 800xA Batch Management, the production in the plant has increased to around 35 percent. In addition, with Information Management capabilities, Amtex now has historical information on which to base decisions in the future.

Juan Camilo Arango, General Manager of Amtex said, “With the System 800xA, we are completely convinced we may offer our customers reliability and repeatability in our products. Nowadays customers worldwide seek minimal changes in their process and the only way of managing it is by reducing process variables.” Amtex plans to replicate the automation project for its other plant in Colombia, also collaborating with ABB’s channel partner Automatización S.A. Now that really is a great reaction to the project’s success and the client’s satisfaction.

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Reference